

SEQUENCE LISTING

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Brunak, Soren  
Wahlberg, Lars

<120> Therapeutic use of a growth factor, NsG33

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<141> 2006-09-30

<150> PCT/EP2005/051431  
<151> 2005-03-30

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<150> US 60/575,086  
<151> 2004-05-28

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Ala Leu Arg Leu Thr Leu Gly Gly Pro Asp Pro Gly Thr Arg Pro Ser
65 70 75 80

Ile Val Cys Leu Arg Pro Glu Arg Pro Phe Ala Gly Ala Gln Val Phe
85 90 95

Ala Glu Arg Met Thr Gly Asn Leu Glu Leu Leu Leu Ala Glu Gly Pro
100 105 110

Asp Leu Ala Gly Gly Arg Cys Met Arg Trp Gly Pro Arg Glu Arg Arg  
 115 120 125

Ala Leu Phe Leu Gln Ala Thr Pro His Arg Asp Ile Ser Arg Arg Val  
 130 135 140

Ala Ala Phe Arg Phe Glu Leu His Glu Asp Gln Arg Ala Glu Met Ser  
 145 150 155 160

Pro Gln Ala Gln Gly Leu Gly Val Asp Gly Ala Cys Arg Pro Cys Ser  
 165 170 175

Asp Ala Glu Leu Leu Leu Ala Ala Cys Thr Ser Asp Phe Val Ile His  
 180 185 190

Gly Thr Ile His Gly Val Ala His Asp Thr Glu Leu Gln Glu Ser Val  
 195 200 205

Ile Thr Val Val Val Ala Arg Val Ile Arg Gln Thr Leu Pro Leu Phe  
 210 215 220

Lys Glu Gly Ser Ser Glu Gly Gln Gly Arg Ala Ser Ile Arg Thr Leu  
 225 230 235 240

Leu Arg Cys Gly Val Arg Pro Gly Pro Gly Ser Phe Leu Phe Met Gly  
 245 250 255

Trp Ser Arg Phe Gly Glu Ala Trp Leu Gly Cys Ala Pro Arg Phe Gln  
 260 265 270

Glu Phe Ser Arg Val Tyr Ser Ala Ala Leu Thr Thr His Leu Asn Pro  
 275 280 285

Cys Glu Met Ala Leu Asp  
 290

<210> 9  
 <211> 270  
 <212> PRT  
 <213> Mus musculus

<400> 9

Gly Tyr Ser Glu Asp Arg Cys Ser Trp Arg Gly Ser Gly Leu Thr Gln  
1 5 10 15

Glu Pro Gly Ser Val Gly Gln Leu Thr Leu Asp Cys Thr Glu Gly Ala  
20 25 30

Ile Glu Trp Leu Tyr Pro Ala Gly Ala Leu Arg Leu Thr Leu Gly Gly  
35 40 45

Pro Asp Pro Gly Thr Arg Pro Ser Ile Val Cys Leu Arg Pro Glu Arg  
50 55 60

Pro Phe Ala Gly Ala Gln Val Phe Ala Glu Arg Met Thr Gly Asn Leu  
65 70 75 80

Glu Leu Leu Leu Ala Glu Gly Pro Asp Leu Ala Gly Gly Arg Cys Met  
85 90 95

Arg Trp Gly Pro Arg Glu Arg Arg Ala Leu Phe Leu Gln Ala Thr Pro  
100 105 110

His Arg Asp Ile Ser Arg Arg Val Ala Ala Phe Arg Phe Glu Leu His  
115 120 125

Glu Asp Gln Arg Ala Glu Met Ser Pro Gln Ala Gln Gly Leu Gly Val  
130 135 140

Asp Gly Ala Cys Arg Pro Cys Ser Asp Ala Glu Leu Leu Leu Ala Ala  
145 150 155 160

Cys Thr Ser Asp Phe Val Ile His Gly Thr Ile His Gly Val Ala His  
165 170 175

Asp Thr Glu Leu Gln Glu Ser Val Ile Thr Val Val Val Ala Arg Val  
180 185 190

Ile Arg Gln Thr Leu Pro Leu Phe Lys Glu Gly Ser Ser Glu Gly Gln  
195 200 205

Gly Arg Ala Ser Ile Arg Thr Leu Leu Arg Cys Gly Val Arg Pro Gly  
 210 215 220

Pro Gly Ser Phe Leu Phe Met Gly Trp Ser Arg Phe Gly Glu Ala Trp  
 225 230 235 240

Leu Gly Cys Ala Pro Arg Phe Gln Glu Phe Ser Arg Val Tyr Ser Ala  
 245 250 255

Ala Leu Thr Thr His Leu Asn Pro Cys Glu Met Ala Leu Asp  
 260 265 270

<210> 10  
 <211> 166  
 <212> PRT  
 <213> Mus musculus

<400> 10

Ala Leu Phe Leu Gln Ala Thr Pro His Arg Asp Ile Ser Arg Arg Val  
 1 5 10 15

Ala Ala Phe Arg Phe Glu Leu His Glu Asp Gln Arg Ala Glu Met Ser  
 20 25 30

Pro Gln Ala Gln Gly Leu Gly Val Asp Gly Ala Cys Arg Pro Cys Ser  
 35 40 45

Asp Ala Glu Leu Leu Leu Ala Ala Cys Thr Ser Asp Phe Val Ile His  
 50 55 60

Gly Thr Ile His Gly Val Ala His Asp Thr Glu Leu Gln Glu Ser Val  
 65 70 75 80

Ile Thr Val Val Val Ala Arg Val Ile Arg Gln Thr Leu Pro Leu Phe  
 85 90 95

Lys Glu Gly Ser Ser Glu Gly Gln Gly Arg Ala Ser Ile Arg Thr Leu  
 100 105 110

Leu Arg Cys Gly Val Arg Pro Gly Pro Gly Ser Phe Leu Phe Met Gly  
 115 120 125

Trp Ser Arg Phe Gly Glu Ala Trp Leu Gly Cys Ala Pro Arg Phe Gln  
 130 135 140

Glu Phe Ser Arg Val Tyr Ser Ala Ala Leu Thr Thr His Leu Asn Pro  
 145 150 155 160

Cys Glu Met Ala Leu Asp  
 165

<210> 11  
 <211> 2321  
 <212> DNA  
 <213> Rattus norvegicus

<220>  
 <221> misc\_feature  
 <222> (17)..(66)  
 <223> n is a, c, g, or t

<400> 11  
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 ctgcgcgctg tgctgcggcc tcttggtcgc gtccgctcga gctggctact ccgaggaccg 180  
 ctgcagctgg aggggcaggt acccaggaga gatatttgggg aggatttttg ttatttgtgt 240  
 tttaaattga aatcttgggt tggagggctc cctccactt ggaactgagg aagcgcagac 300  
 ctcaatgtcc tgttcagag ggtggacgca ggtgttggtg gccgcgggaa aagggttgag 360  
 cgggctaggg aaatgagggc caccacactg agaaccaccg tcctgtcccc agcggtttga 420  
 ccaggaacc tggcagcgtg gggcagctga ccctggattg tactgagggt gctatcgagt 480  
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 acatcagccg cagagttgct gccttccaat ttgaactgca cgaggaccaa cgtgcagaaa 780  
 tgttccccca ggcccaaggt tttggtgtgg atggtgagtg actagactgg ctggggcgga 840  
 gctgggtgtc agaaactggc cctctacact ggcctgatcc gaatgggcct tgcctcccca 900



ctgcaccgaa agccctgtag cttgacggag gctactctgg tggagaacac agtggcttcc	960
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gtttaggaaa agagcgggag ggggcagatg ccagagaggc cagccttggg tctctggttt	1080
ctgaaggggtt ggggggaagg gttgggctgg ggcagaatca aagcctatgg ccgaagctgt	1140
ccagggctcc ctggccttgt ggtgacctcc ttccccctcc cctagcccaa ccaacaaaag	1200
tccagtgtgc ctcttcgtca ccatggagac tgccctgcct gcctcccggc agggcaccag	1260
gcccagtgtt ttgctcttct ggaacttgtc tcctgacctc gcagggaaatg gctctctgac	1320
tgctctgcca tagacagaga cccagaaagc agagtccact agaatatccc tggctggacc	1380
tgggaggcag ctctgggagg ttacagaaag ttccccagtg ttggtctgag tttctgagat	1440
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atgctgggag aagggttttag tcgccagctc ctgtaccttc tcctactgtg gggagctgtg	1560
ggcttgtgct gagagatcac aggcctgcct gatgacctgc cttgcatgct aggtgcctgc	1620
aggccctgca gtgatgccga gctccttctg actgcatgca ccagtgactt tggtgagtgt	1680
ttccgtcttg ggagagctta gggctctgcc cacattccca cgtgcccacc actggccacc	1740
atgtctcttc gtagtgatcc atgggaccat ccatggggtc gtccatgaca tggagctgca	1800
agaatcagtc atcactgtgg tggccactcg tgtcatccgc cagacactgc cactgttcca	1860
ggaagggagc tcggagggcc ggggccaggc ctccgttcgt accttggtgc gctgtggtgt	1920
gcgtcctggc ccaggctcct tcctcttcat gggctggagc cgatttggcg aagcttggct	1980
gggctgcgct ccccgcttcc aagagttcag ccgtgtctat tcagctgctc tcgcggccca	2040
cctcaacca tgtgaggtgg cactggactg agagacctgg gagcaagccc tggatggatc	2100
ttcctctggg gatgggggtgt tggggagggg tgataggagg gtgggtggga aggggtgtggc	2160
tcagatggca tcctgggtacc cacagtgagg tggtagaata ctaaataaacc tggatcacac	2220
cagccactgt agacatggtc ttctgtgaca ggcaggctca ctcagctctg ctectgcctc	2280
actttaccta ctctccagtc tgctgccctt ctgaccttc t	2321

<210> 12  
 <211> 1026  
 <212> DNA  
 <213> Rattus norvegicus

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<220>
<221> CDS
<222> (1)..(876)

<400> 12
atg ctg gta gcg gcg ctt ctc tgc gcg ctg tgc tgc ggc ctc ttg gct      48
Met Leu Val Ala Ala Leu Leu Cys Ala Leu Cys Cys Gly Leu Leu Ala
1          5          10          15

gcg tcc gct cga gct ggc tac tcc gag gac cgc tgc agc tgg agg ggc      96
Ala Ser Ala Arg Ala Gly Tyr Ser Glu Asp Arg Cys Ser Trp Arg Gly
          20          25          30

agc ggt ttg acc cag gaa cct ggc agc gtg ggg cag ctg acc ctg gat      144
Ser Gly Leu Thr Gln Glu Pro Gly Ser Val Gly Gln Leu Thr Leu Asp
          35          40          45

tgt act gag ggt gct atc gag tgg ctg tat cca gct ggg gcg ctg cgc      192
Cys Thr Glu Gly Ala Ile Glu Trp Leu Tyr Pro Ala Gly Ala Leu Arg
          50          55          60

ctg act cta ggc ggc tct gat ccg ggc acg cgg ccc agc atc gtc tgt      240
Leu Thr Leu Gly Gly Ser Asp Pro Gly Thr Arg Pro Ser Ile Val Cys
65          70          75          80

ctg cgc cca aca cgg ccc ttc gct ggt gcc cag gtc ttc gct gaa cgg      288
Leu Arg Pro Thr Arg Pro Phe Ala Gly Ala Gln Val Phe Ala Glu Arg
          85          90          95

atg gcc ggc aac cta gag ttg cta ctg gcc gag ggc caa ggc ctg gct      336
Met Ala Gly Asn Leu Glu Leu Leu Leu Ala Glu Gly Gln Gly Leu Ala
          100          105          110

ggg ggc cgc tgc atg cgc tgg ggt cct cgc gag cgc cga gcc ctt ttc      384
Gly Gly Arg Cys Met Arg Trp Gly Pro Arg Glu Arg Arg Ala Leu Phe
          115          120          125

ctg cag gcc acg cca cac cgg gac atc agc cgc aga gtt gct gcc ttc      432
Leu Gln Ala Thr Pro His Arg Asp Ile Ser Arg Arg Val Ala Ala Phe
          130          135          140

caa ttt gaa ctg cac gag gac caa cgt gca gaa atg tct ccc cag gcc      480
Gln Phe Glu Leu His Glu Asp Gln Arg Ala Glu Met Ser Pro Gln Ala
          145          150          155          160

caa ggt ttt ggt gtg gat ggt gcc tgc agg ccc tgc agt gat gcc gag      528
Gln Gly Phe Gly Val Asp Gly Ala Cys Arg Pro Cys Ser Asp Ala Glu
          165          170          175

ctc ctt ctg act gca tgc acc agt gac ttt gtg atc cat ggg acc atc      576
Leu Leu Leu Thr Ala Cys Thr Ser Asp Phe Val Ile His Gly Thr Ile
          180          185          190

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cat ggg gtc gtc cat gac atg gag ctg caa gaa tca gtc atc act gtg	624
His Gly Val Val His Asp Met Glu Leu Gln Glu Ser Val Ile Thr Val	
195 200 205	

gtg gcc act cgt gtc atc cgc cag aca ctg cca ctg ttc cag gaa ggg	672
Val Ala Thr Arg Val Ile Arg Gln Thr Leu Pro Leu Phe Gln Glu Gly	
210 215 220	

agc tcg gag ggc cgg ggc cag gcc tcc gtt cgt acc ttg ttg cgc tgt	720
Ser Ser Glu Gly Arg Gly Gln Ala Ser Val Arg Thr Leu Leu Arg Cys	
225 230 235 240	

ggg gtc cgt cct ggc cca ggc tcc ttc ctc ttc atg ggc tgg agc cga	768
Gly Val Arg Pro Gly Pro Gly Ser Phe Leu Phe Met Gly Trp Ser Arg	
245 250 255	

ttt ggc gaa gct tgg ctg ggc tgc gct ccc cgc ttc caa gag ttc agc	816
Phe Gly Glu Ala Trp Leu Gly Cys Ala Pro Arg Phe Gln Glu Phe Ser	
260 265 270	

cgt gtc tat tca gct gct ctc gcg gcc cac ctc aac cca tgt gag gtg	864
Arg Val Tyr Ser Ala Ala Leu Ala Ala His Leu Asn Pro Cys Glu Val	
275 280 285	

gca ctg gac tga gagacctggg agcaagccct ggatggatct tcctctgggg	916
Ala Leu Asp	
290	

atgggggtggt ggggaggggt gataggaggg tgggtgggaa ggggtgtggct cagatggcat	976
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cctgggtaccc acagtgaggt ggtagaatac taaataacct ggatcacacc	1026
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<210> 13  
 <211> 291  
 <212> PRT  
 <213> Rattus norvegicus

<400> 13

Met Leu Val Ala Ala Leu Leu Cys Ala Leu Cys Cys Gly Leu Leu Ala
1 5 10 15

Ala Ser Ala Arg Ala Gly Tyr Ser Glu Asp Arg Cys Ser Trp Arg Gly
20 25 30

Ser Gly Leu Thr Gln Glu Pro Gly Ser Val Gly Gln Leu Thr Leu Asp
35 40 45

Cys Thr Glu Gly Ala Ile Glu Trp Leu Tyr Pro Ala Gly Ala Leu Arg
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50		55		60
Leu Thr Leu Gly Gly Ser Asp Pro Gly Thr Arg Pro Ser Ile Val Cys				
65		70		80
Leu Arg Pro Thr Arg Pro Phe Ala Gly Ala Gln Val Phe Ala Glu Arg				
	85		90	95
Met Ala Gly Asn Leu Glu Leu Leu Leu Ala Glu Gly Gln Gly Leu Ala				
	100		105	110
Gly Gly Arg Cys Met Arg Trp Gly Pro Arg Glu Arg Arg Ala Leu Phe				
	115		120	125
Leu Gln Ala Thr Pro His Arg Asp Ile Ser Arg Arg Val Ala Ala Phe				
	130		135	140
Gln Phe Glu Leu His Glu Asp Gln Arg Ala Glu Met Ser Pro Gln Ala				
145		150		155
Gln Gly Phe Gly Val Asp Gly Ala Cys Arg Pro Cys Ser Asp Ala Glu				
	165		170	175
Leu Leu Leu Thr Ala Cys Thr Ser Asp Phe Val Ile His Gly Thr Ile				
	180		185	190
His Gly Val Val His Asp Met Glu Leu Gln Glu Ser Val Ile Thr Val				
	195		200	205
Val Ala Thr Arg Val Ile Arg Gln Thr Leu Pro Leu Phe Gln Glu Gly				
	210		215	220
Ser Ser Glu Gly Arg Gly Gln Ala Ser Val Arg Thr Leu Leu Arg Cys				
225		230		235
Gly Val Arg Pro Gly Pro Gly Ser Phe Leu Phe Met Gly Trp Ser Arg				
	245		250	255
Phe Gly Glu Ala Trp Leu Gly Cys Ala Pro Arg Phe Gln Glu Phe Ser				
	260		265	270

Arg Val Tyr Ser Ala Ala Leu Ala Ala His Leu Asn Pro Cys Glu Val  
 275 280 285

Ala Leu Asp  
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<210> 14  
 <211> 275  
 <212> PRT  
 <213> Rattus norvegicus

<220>  
 <221> MISC\_FEATURE  
 <222> (1)..(5)  
 <223> Potentially part of signal peptide

<400> 14

Ala Ser Ala Arg Ala Gly Tyr Ser Glu Asp Arg Cys Ser Trp Arg Gly  
 1 5 10 15

Ser Gly Leu Thr Gln Glu Pro Gly Ser Val Gly Gln Leu Thr Leu Asp  
 20 25 30

Cys Thr Glu Gly Ala Ile Glu Trp Leu Tyr Pro Ala Gly Ala Leu Arg  
 35 40 45

Leu Thr Leu Gly Gly Ser Asp Pro Gly Thr Arg Pro Ser Ile Val Cys  
 50 55 60

Leu Arg Pro Thr Arg Pro Phe Ala Gly Ala Gln Val Phe Ala Glu Arg  
 65 70 75 80

Met Ala Gly Asn Leu Glu Leu Leu Leu Ala Glu Gly Gln Gly Leu Ala  
 85 90 95

Gly Gly Arg Cys Met Arg Trp Gly Pro Arg Glu Arg Arg Ala Leu Phe  
 100 105 110

Leu Gln Ala Thr Pro His Arg Asp Ile Ser Arg Arg Val Ala Ala Phe  
 115 120 125

Gln Phe Glu Leu His Glu Asp Gln Arg Ala Glu Met Ser Pro Gln Ala  
 130 135 140

Gln Gly Phe Gly Val Asp Gly Ala Cys Arg Pro Cys Ser Asp Ala Glu  
 145 150 155 160

Leu Leu Leu Thr Ala Cys Thr Ser Asp Phe Val Ile His Gly Thr Ile  
 165 170 175

His Gly Val Val His Asp Met Glu Leu Gln Glu Ser Val Ile Thr Val  
 180 185 190

Val Ala Thr Arg Val Ile Arg Gln Thr Leu Pro Leu Phe Gln Glu Gly  
 195 200 205

Ser Ser Glu Gly Arg Gly Gln Ala Ser Val Arg Thr Leu Leu Arg Cys  
 210 215 220

Gly Val Arg Pro Gly Pro Gly Ser Phe Leu Phe Met Gly Trp Ser Arg  
 225 230 235 240

Phe Gly Glu Ala Trp Leu Gly Cys Ala Pro Arg Phe Gln Glu Phe Ser  
 245 250 255

Arg Val Tyr Ser Ala Ala Leu Ala Ala His Leu Asn Pro Cys Glu Val  
 260 265 270

Ala Leu Asp  
 275

<210> 15  
 <211> 166  
 <212> PRT  
 <213> Rattus norvegicus

<400> 15

Ala Leu Phe Leu Gln Ala Thr Pro His Arg Asp Ile Ser Arg Arg Val  
 1 5 10 15

Ala Ala Phe Gln Phe Glu Leu His Glu Asp Gln Arg Ala Glu Met Ser  
 20 25 30

Pro Gln Ala Gln Gly Phe Gly Val Asp Gly Ala Cys Arg Pro Cys Ser  
 35 40 45

Asp Ala Glu Leu Leu Leu Thr Ala Cys Thr Ser Asp Phe Val Ile His  
 50 55 60

Gly Thr Ile His Gly Val Val His Asp Met Glu Leu Gln Glu Ser Val  
 65 70 75 80

Ile Thr Val Val Ala Thr Arg Val Ile Arg Gln Thr Leu Pro Leu Phe  
 85 90 95

Gln Glu Gly Ser Ser Glu Gly Arg Gly Gln Ala Ser Val Arg Thr Leu  
 100 105 110

Leu Arg Cys Gly Val Arg Pro Gly Pro Gly Ser Phe Leu Phe Met Gly  
 115 120 125

Trp Ser Arg Phe Gly Glu Ala Trp Leu Gly Cys Ala Pro Arg Phe Gln  
 130 135 140

Glu Phe Ser Arg Val Tyr Ser Ala Ala Leu Ala Ala His Leu Asn Pro  
 145 150 155 160

Cys Glu Val Ala Leu Asp  
 165

<210> 16  
 <211> 498  
 <212> DNA  
 <213> Homo sapiens

<400> 16  
 gccctcttcc tgcaggccac gccgcaccag gacatcagcc gccgcgtggc cgccttcgc 60  
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 gacggtgcct gcaggccctg cagcgacgt gagctgctcc tggccgcatg caccagcgac 180  
 ttcgtaattc acgggatcat ccatggggtc acccatgacg tggagctgca ggagtctgtc 240  
 atcactgtgg tggccgcccg tgtcctccgc cagacaccgc cgctgttcca ggcggggcga 300  
 tccggggacc aggggctgac ctccattcgt accccactgc gctgtggcgt ccaccggggc 360

ccaggcacct	tcctcttcat	gggctggagc	cgctttgggg	aggcccggct	gggctgtgcc	420
ccacgattcc	aggagttccg	ccgtgcctac	gaggctgccc	gtgctgccc	cctccacccc	480
tgcgaggtgg	cgctgcac					498

<210> 17  
 <211> 498  
 <212> DNA  
 <213> Mus musculus

<400> 17						
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gatgggtgcct	gcaggccctg	cagtgatgcc	gagctcctcc	tggctgcatg	caccagtgat	180
tttgtgatcc	acgggaccat	ccatggggtc	gcccattgaca	cagagctgca	agaatcagtc	240
atcactgtgg	tggttgctcg	tgcatccgc	cagacactgc	cactgttcaa	ggaaggagc	300
tcggagggcc	aaggccgggc	ctccattcgt	accttgctgc	gctgtggtgt	gcgtcctggc	360
ccaggctcct	tcctcttcat	gggctggagc	cgatttggcg	aagcttggct	gggctgtgct	420
ccccgcttcc	aagagttcag	ccgtgtctat	tcagctgctc	tcacgacca	tctcaacca	480
tgtgagatgg	cactggac					498

<210> 18  
 <211> 498  
 <212> DNA  
 <213> Rattus norvegicus

<400> 18						
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tttgaactgc	acgaggacca	acgtgcagaa	atgtctcccc	aggcccaagg	ttttggtgtg	120
gatgggtgcct	gcaggccctg	cagtgatgcc	gagctccttc	tgactgcatg	caccagtgc	180
tttgtgatcc	atgggaccat	ccatggggtc	gtccattgaca	tggagctgca	agaatcagtc	240
atcactgtgg	tgccactcg	tgcatccgc	cagacactgc	cactgttcca	ggaaggagc	300
tcggagggcc	ggggccaggc	ctccgttcgt	accttggtgc	gctgtggtgt	gcgtcctggc	360
ccaggctcct	tcctcttcat	gggctggagc	cgatttggcg	aagcttggct	gggctgcgct	420
ccccgcttcc	aagagttcag	ccgtgtctat	tcagctgctc	tcgcggcca	cctcaacca	480



tgtgaggtgg cactggac

498

<210> 19  
<211> 104  
<212> PRT  
<213> Homo sapiens

<400> 19

Gly Tyr Ser Glu Glu Arg Cys Ser Trp Arg Gly Ser Gly Leu Thr Gln  
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Glu Pro Gly Ser Val Gly Gln Leu Ala Leu Ala Cys Ala Glu Gly Ala  
20 25 30

Val Glu Trp Leu Tyr Pro Ala Gly Ala Leu Arg Leu Thr Leu Gly Gly  
35 40 45

Pro Asp Pro Arg Ala Arg Pro Gly Ile Ala Cys Leu Arg Pro Val Arg  
50 55 60

Pro Phe Ala Gly Ala Gln Val Phe Ala Glu Arg Ala Gly Gly Ala Leu  
65 70 75 80

Glu Leu Leu Leu Ala Glu Gly Pro Gly Pro Ala Gly Gly Arg Cys Val  
85 90 95

Arg Trp Gly Pro Arg Glu Arg Arg  
100

<210> 20  
<211> 104  
<212> PRT  
<213> Mus musculus

<400> 20

Gly Tyr Ser Glu Asp Arg Cys Ser Trp Arg Gly Ser Gly Leu Thr Gln  
1 5 10 15

Glu Pro Gly Ser Val Gly Gln Leu Thr Leu Asp Cys Thr Glu Gly Ala  
20 25 30

Ile Glu Trp Leu Tyr Pro Ala Gly Ala Leu Arg Leu Thr Leu Gly Gly  
 35 40 45

Pro Asp Pro Gly Thr Arg Pro Ser Ile Val Cys Leu Arg Pro Glu Arg  
 50 55 60

Pro Phe Ala Gly Ala Gln Val Phe Ala Glu Arg Met Thr Gly Asn Leu  
 65 70 75 80

Glu Leu Leu Leu Ala Glu Gly Pro Asp Leu Ala Gly Gly Arg Cys Met  
 85 90 95

Arg Trp Gly Pro Arg Glu Arg Arg  
 100

<210> 21  
 <211> 109  
 <212> PRT  
 <213> Rattus norvegicus

<220>  
 <221> MISC\_FEATURE  
 <222> (1)..(5)  
 <223> Potentially part of signal peptide

<400> 21

Ala Ser Ala Arg Ala Gly Tyr Ser Glu Asp Arg Cys Ser Trp Arg Gly  
 1 5 10 15

Ser Gly Leu Thr Gln Glu Pro Gly Ser Val Gly Gln Leu Thr Leu Asp  
 20 25 30

Cys Thr Glu Gly Ala Ile Glu Trp Leu Tyr Pro Ala Gly Ala Leu Arg  
 35 40 45

Leu Thr Leu Gly Gly Ser Asp Pro Gly Thr Arg Pro Ser Ile Val Cys  
 50 55 60

Leu Arg Pro Thr Arg Pro Phe Ala Gly Ala Gln Val Phe Ala Glu Arg  
 65 70 75 80

Met Ala Gly Asn Leu Glu Leu Leu Leu Ala Glu Gly Gln Gly Leu Ala

85

90

95

Gly Gly Arg Cys Met Arg Trp Gly Pro Arg Glu Arg Arg  
 100 105

<210> 22  
 <211> 97  
 <212> PRT  
 <213> Homo sapiens

<400> 22

Gly Tyr Ser Glu Glu Arg Cys Ser Trp Arg Gly Ser Gly Leu Thr Gln  
 1 5 10 15

Glu Pro Gly Ser Val Gly Gln Leu Ala Leu Ala Cys Ala Glu Gly Ala  
 20 25 30

Val Glu Trp Leu Tyr Pro Ala Gly Ala Leu Arg Leu Thr Leu Gly Gly  
 35 40 45

Pro Asp Pro Arg Ala Arg Pro Gly Ile Ala Cys Leu Arg Pro Val Arg  
 50 55 60

Pro Phe Ala Gly Ala Gln Val Phe Ala Glu Arg Ala Gly Gly Ala Leu  
 65 70 75 80

Glu Leu Leu Leu Ala Glu Gly Pro Gly Pro Ala Gly Gly Arg Cys Val  
 85 90 95

Arg

<210> 23  
 <211> 97  
 <212> PRT  
 <213> Mus musculus

<400> 23

Gly Tyr Ser Glu Asp Arg Cys Ser Trp Arg Gly Ser Gly Leu Thr Gln  
 1 5 10 15

Glu Pro Gly Ser Val Gly Gln Leu Thr Leu Asp Cys Thr Glu Gly Ala

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Ile	Glu	Trp	Leu	Tyr	Pro	Ala	Gly	Ala	Leu	Arg	Leu	Thr	Leu	Gly	Gly
	35		40		45										
Pro	Asp	Pro	Gly	Thr	Arg	Pro	Ser	Ile	Val	Cys	Leu	Arg	Pro	Glu	Arg
	50		55		60										
Pro	Phe	Ala	Gly	Ala	Gln	Val	Phe	Ala	Glu	Arg	Met	Thr	Gly	Asn	Leu
65			70		75									80	
Glu	Leu	Leu	Leu	Ala	Glu	Gly	Pro	Asp	Leu	Ala	Gly	Gly	Arg	Cys	Met
			85		90									95	

Arg

<210> 24  
 <211> 102  
 <212> PRT  
 <213> Rattus norvegicus

<220>  
 <221> MISC\_FEATURE  
 <222> (1)..(5)  
 <223> Potentially part of signal peptide

<400> 24

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Ser	Gly	Leu	Thr	Gln	Glu	Pro	Gly	Ser	Val	Gly	Gln	Leu	Thr	Leu	Asp
		20			25							30			
Cys	Thr	Glu	Gly	Ala	Ile	Glu	Trp	Leu	Tyr	Pro	Ala	Gly	Ala	Leu	Arg
	35				40					45					
Leu	Thr	Leu	Gly	Gly	Ser	Asp	Pro	Gly	Thr	Arg	Pro	Ser	Ile	Val	Cys
	50				55					60					
Leu	Arg	Pro	Thr	Arg	Pro	Phe	Ala	Gly	Ala	Gln	Val	Phe	Ala	Glu	Arg
65				70				75						80	

Met Ala Gly Asn Leu Glu Leu Leu Leu Ala Glu Gly Gln Gly Leu Ala  
85 90 95

Gly Gly Arg Cys Met Arg  
100

<210> 25  
<211> 1363  
<212> DNA  
<213> Mus musculus

<220>  
<221> CDS  
<222> (84)..(959)

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agggccccggc gcgtccccta acc atg ctg gta gcc acg ctt ctt tgc gcg ctc 113  
Met Leu Val Ala Thr Leu Leu Cys Ala Leu  
1 5 10  
tgt tgc ggc ctc ctg gcc gcg tcc gct cac gct ggc tac tcg gaa gac 161  
Cys Cys Gly Leu Leu Ala Ala Ser Ala His Ala Gly Tyr Ser Glu Asp  
15 20 25  
cgc tgc agc tgg agg ggc agc ggt ttg acc cag gag cct ggc agc gtg 209  
Arg Cys Ser Trp Arg Gly Ser Gly Leu Thr Gln Glu Pro Gly Ser Val  
30 35 40  
ggg cag ctg acc ctg gac tgt act gag ggc gct atc gag tgg ctg tac 257  
Gly Gln Leu Thr Leu Asp Cys Thr Glu Gly Ala Ile Glu Trp Leu Tyr  
45 50 55  
cca gct ggg gcg ctg cgc ctg acc ctg ggc ggc ccc gat ccg ggc aca 305  
Pro Ala Gly Ala Leu Arg Leu Thr Leu Gly Gly Pro Asp Pro Gly Thr  
60 65 70  
cgg ccc agc atc gtc tgt ctg cgc cca gag cgg ccc ttc gct ggt gcc 353  
Arg Pro Ser Ile Val Cys Leu Arg Pro Glu Arg Pro Phe Ala Gly Ala  
75 80 85 90  
cag gtc ttc gct gaa cgt atg acc ggc aat cta gag ttg cta ctg gcc 401  
Gln Val Phe Ala Glu Arg Met Thr Gly Asn Leu Glu Leu Leu Leu Ala  
95 100 105  
gag ggc ccg gac ctg gct ggg ggc cgc tgc atg cgc tgg ggt ccc cgc 449  
Glu Gly Pro Asp Leu Ala Gly Gly Arg Cys Met Arg Trp Gly Pro Arg  
110 115 120

gag cgc cga gcc ctt ttc ctg cag gcc aca cca cac cgc gac atc agc	497
Glu Arg Arg Ala Leu Phe Leu Gln Ala Thr Pro His Arg Asp Ile Ser	
125 130 135	
cgc aga gtt gct gcc ttc cgt ttt gaa ctg cac gag gac caa cgt gca	545
Arg Arg Val Ala Ala Phe Arg Phe Glu Leu His Glu Asp Gln Arg Ala	
140 145 150	
gaa atg tct ccc cag gct caa ggt ctt ggt gtg gat ggt gcc tgc agg	593
Glu Met Ser Pro Gln Ala Gln Gly Leu Gly Val Asp Gly Ala Cys Arg	
155 160 165 170	
ccc tgc agt gat gcc gag ctc ctc ctg gct gca tgc acc agt gat ttt	641
Pro Cys Ser Asp Ala Glu Leu Leu Leu Ala Ala Cys Thr Ser Asp Phe	
175 180 185	
gtg atc cac ggg acc atc cat ggg gtc gcc cat gac aca gag ctg caa	689
Val Ile His Gly Thr Ile His Gly Val Ala His Asp Thr Glu Leu Gln	
190 195 200	
gaa tca gtc atc act gtg gtg gtt gct cgt gtc atc cgc cag aca ctg	737
Glu Ser Val Ile Thr Val Val Val Ala Arg Val Ile Arg Gln Thr Leu	
205 210 215	
cca ctg ttc aag gaa ggg agc tcg gag ggc caa ggc cgg gcc tcc att	785
Pro Leu Phe Lys Glu Gly Ser Ser Glu Gly Gln Gly Arg Ala Ser Ile	
220 225 230	
cgt acc ttg ctg cgc tgt ggt gtg cgt cct ggc cca ggc tcc ttc ctc	833
Arg Thr Leu Leu Arg Cys Gly Val Arg Pro Gly Pro Gly Ser Phe Leu	
235 240 245 250	
ttc atg ggc tgg agc cga ttt ggc gaa gct tgg ctg ggc tgt gct ccc	881
Phe Met Gly Trp Ser Arg Phe Gly Glu Ala Trp Leu Gly Cys Ala Pro	
255 260 265	
cgc ttc caa gag ttc agc cgt gtc tat tca gct gct ctc acg acc cat	929
Arg Phe Gln Glu Phe Ser Arg Val Tyr Ser Ala Ala Leu Thr Thr His	
270 275 280	
ctc aac cca tgt gag atg gca ctg gac tga gagacctggg agcaagccct	979
Leu Asn Pro Cys Glu Met Ala Leu Asp	
285 290	
ggatggacct tcttctggag atggggtggt ggggaggggtg atgggaggggt ggggtgagaag	1039
gggtgtggctc ggatggcatc ctggtaccca cagtgaagctg gtagaataact aagtaatctg	1099
gaccatacca gccactgtag tcatggtctt ctgtggcagg cagcataccc agctctgtgc	1159
ctgcctcaact ttgtctactc tccagtctgc tgcccttcta acccttctta gcctgtctgac	1219
cagtgaagctc atgttttctc cgaattccag ggtgctgctg gggttcagag caaccgtgcc	1279

gtagtttgga agacttgagc taattgtttt ttttttgttt gtttttttgt ttgttttaaag 1339

gtggcctggg gggggcggca aaca 1363

<210> 26

<211> 291

<212> PRT

<213> Mus musculus

<400> 26

Met Leu Val Ala Thr Leu Leu Cys Ala Leu Cys Cys Gly Leu Leu Ala  
1 5 10 15

Ala Ser Ala His Ala Gly Tyr Ser Glu Asp Arg Cys Ser Trp Arg Gly  
20 25 30

Ser Gly Leu Thr Gln Glu Pro Gly Ser Val Gly Gln Leu Thr Leu Asp  
35 40 45

Cys Thr Glu Gly Ala Ile Glu Trp Leu Tyr Pro Ala Gly Ala Leu Arg  
50 55 60

Leu Thr Leu Gly Gly Pro Asp Pro Gly Thr Arg Pro Ser Ile Val Cys  
65 70 75 80

Leu Arg Pro Glu Arg Pro Phe Ala Gly Ala Gln Val Phe Ala Glu Arg  
85 90 95

Met Thr Gly Asn Leu Glu Leu Leu Leu Ala Glu Gly Pro Asp Leu Ala  
100 105 110

Gly Gly Arg Cys Met Arg Trp Gly Pro Arg Glu Arg Arg Ala Leu Phe  
115 120 125

Leu Gln Ala Thr Pro His Arg Asp Ile Ser Arg Arg Val Ala Ala Phe  
130 135 140

Arg Phe Glu Leu His Glu Asp Gln Arg Ala Glu Met Ser Pro Gln Ala  
145 150 155 160

Gln Gly Leu Gly Val Asp Gly Ala Cys Arg Pro Cys Ser Asp Ala Glu

	165		170		175										
Leu	Leu	Leu	Ala	Ala	Cys	Thr	Ser	Asp	Phe	Val	Ile	His	Gly	Thr	Ile
	180							185					190		
His	Gly	Val	Ala	His	Asp	Thr	Glu	Leu	Gln	Glu	Ser	Val	Ile	Thr	Val
	195						200					205			
Val	Val	Ala	Arg	Val	Ile	Arg	Gln	Thr	Leu	Pro	Leu	Phe	Lys	Glu	Gly
	210					215					220				
Ser	Ser	Glu	Gly	Gln	Gly	Arg	Ala	Ser	Ile	Arg	Thr	Leu	Leu	Arg	Cys
225					230					235					240
Gly	Val	Arg	Pro	Gly	Pro	Gly	Ser	Phe	Leu	Phe	Met	Gly	Trp	Ser	Arg
				245					250					255	
Phe	Gly	Glu	Ala	Trp	Leu	Gly	Cys	Ala	Pro	Arg	Phe	Gln	Glu	Phe	Ser
			260					265					270		
Arg	Val	Tyr	Ser	Ala	Ala	Leu	Thr	Thr	His	Leu	Asn	Pro	Cys	Glu	Met
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Ala	Leu	Asp													
	290														

<210> 27  
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 <212> PRT  
 <213> homo sapiens

<220>  
 <221> misc\_feature  
 <223> Conserved strong group of NsG33

<400> 27

Asn Glu Gln Lys  
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<210> 28  
 <211> 4  
 <212> PRT



<213> homo sapiens

<220>

<221> misc\_feature

<223> Conserved strong group of NsG33

<400> 28

Asn His Gln Lys

1

<210> 29

<211> 4

<212> PRT

<213> homo sapiens

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<221> misc\_feature

<223> Conserved strong group of NsG33

<400> 29

Asn Asp Glu Gln

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<210> 30

<211> 4

<212> PRT

<213> homo sapiens

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<223> Conserved strong group of NsG33

<400> 30

Gln His Arg Lys

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<210> 31

<211> 4

<212> PRT

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<223> Conserved strong group of NsG33

<400> 31

Met Ile Leu Val

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<210> 32

<211> 4

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<213> homo sapiens

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<223> Conserved strong group of NsG33

<400> 32

Met Ile Leu Phe

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<210> 33

<211> 4

<212> PRT

<213> homo sapiens

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<223> Conserved weak group of NsG33

<400> 33

Ser Thr Asn Lys

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<210> 34

<211> 4

<212> PRT

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<400> 34

Ser Thr Pro Ala

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<210> 35  
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<400> 35

Ser Gly Asn Asp  
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<210> 36  
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<213> homo sapiens

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<223> Conserved weak group of NsG33

<400> 36

Ser Asn Asp Glu Gln Lys  
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<210> 37  
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<400> 37

Asn Asp Glu Gln His Lys  
1 5

<210> 38  
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<212> PRT  
<213> homo sapiens

<220>  
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 <223> Conserved weak group of NsG33

<400> 38

Asn Glu Gln His Arg Lys  
 1 5

<210> 39  
 <211> 4  
 <212> PRT  
 <213> homo sapiens

<220>  
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 <223> Conserved weak group of NsG33

<400> 39

Val Leu Ile Met  
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<210> 40  
 <211> 311  
 <212> PRT  
 <213> Homo sapiens

<400> 40

Met Arg Gly Ala Ala Arg Ala Ala Trp Gly Arg Ala Gly Gln Pro Trp  
 1 5 10 15

Pro Arg Pro Pro Ala Pro Gly Pro Pro Pro Pro Pro Leu Pro Leu Leu  
 20 25 30

Leu Leu Leu Leu Ala Gly Leu Leu Gly Gly Ala Gly Ala Gln Tyr Ser  
 35 40 45

Ser Asp Arg Cys Ser Trp Lys Gly Ser Gly Leu Thr His Glu Ala His  
 50 55 60

Arg Lys Glu Val Glu Gln Val Tyr Leu Arg Cys Ala Ala Gly Ala Val  
 65 70 75 80

Glu	Trp	Met	Tyr	Pro	Thr	Gly	Ala	Leu	Ile	Val	Asn	Leu	Arg	Pro	Asn	85	90	95
Thr	Phe	Ser	Pro	Ala	Arg	His	Leu	Thr	Val	Cys	Ile	Arg	Ser	Phe	Thr	100	105	110
Asp	Ser	Ser	Gly	Ala	Asn	Ile	Tyr	Leu	Glu	Lys	Thr	Gly	Glu	Leu	Arg	115	120	125
Leu	Leu	Val	Pro	Asp	Gly	Asp	Gly	Arg	Pro	Gly	Arg	Val	Gln	Cys	Phe	130	135	140
Gly	Leu	Glu	Gln	Gly	Gly	Leu	Phe	Val	Glu	Ala	Thr	Pro	Gln	Gln	Asp	145	150	155
Ile	Gly	Arg	Arg	Thr	Thr	Gly	Phe	Gln	Tyr	Glu	Leu	Val	Arg	Arg	His	165	170	175
Arg	Ala	Ser	Asp	Leu	His	Glu	Leu	Ser	Ala	Pro	Cys	Arg	Pro	Cys	Ser	180	185	190
Asp	Thr	Glu	Val	Leu	Leu	Ala	Val	Cys	Thr	Ser	Asp	Phe	Ala	Val	Arg	195	200	205
Gly	Ser	Ile	Gln	Gln	Val	Thr	His	Glu	Pro	Glu	Arg	Gln	Asp	Ser	Ala	210	215	220
Ile	His	Leu	Arg	Val	Ser	Arg	Leu	Tyr	Arg	Gln	Lys	Ser	Arg	Val	Phe	225	230	235
Glu	Pro	Val	Pro	Glu	Gly	Asp	Gly	His	Trp	Gln	Gly	Arg	Val	Arg	Thr	245	250	255
Leu	Leu	Glu	Cys	Gly	Val	Arg	Pro	Gly	His	Gly	Asp	Phe	Leu	Phe	Thr	260	265	270
Gly	His	Met	His	Phe	Gly	Glu	Ala	Arg	Leu	Gly	Cys	Ala	Pro	Arg	Phe	275	280	285
Lys	Asp	Phe	Gln	Arg	Met	Tyr	Arg	Asp	Ala	Gln	Glu	Arg	Gly	Leu	Asn	290	295	300

Pro Cys Glu Val Gly Thr Asp  
305 310

<210> 41  
<211> 5  
<212> PRT  
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<220>  
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<223> NsG33 cleavage sequence motif

<400> 41

Ala Arg Ala Gly Tyr  
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<210> 42  
<211> 9  
<212> PRT  
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<220>  
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<223> NsG33 cleavage sequence motif

<400> 42

Trp Gly Pro Arg Glu Arg Arg Ala Leu  
1 5

<210> 43  
<211> 8  
<212> PRT  
<213> homo sapiens

<220>  
<221> misc\_feature  
<223> NsG33 cleavage sequence motif

<400> 43

Gly Gly Arg Cys Val Arg Trp Gly  
1 5

<210> 44  
<211> 8  
<212> PRT  
<213> Rattus norvegicus

<220>  
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<223> N-terminal of cleaved NsG33

<400> 44

Gly Tyr Ser Glu Asp Arg Cys Ser  
1 5

<210> 45  
<211> 10  
<212> PRT  
<213> Rattus norvegicus

<220>  
<221> misc\_feature  
<223> N-terminal of NsG33

<400> 45

Ala Ser Ala Arg Ala Gly Tyr Ser Glu Asp  
1 5 10

<210> 46  
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<220>  
<223> Chemically synthesized primer

<400> 46  
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29

<210> 47  
<211> 31  
<212> DNA  
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<220>  
<223> Chemically synthesized primer

<400> 47  
tatactcgag gccaccctc cctcctacca g

31

<210> 48  
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 ccagcgactt cgtaattcac 20  
  
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 <400> 49  
 agcccatgaa gaggaagg 18  
  
 <210> 50  
 <211> 20  
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 tgtgctcgcg ctactctctc 20  
  
 <210> 51  
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 ctgaatgctc cactttttca attct 25  
  
 <210> 52  
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<220>  
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 <400> 52  
 gtcttcgctg aacgtatgac 20  
  
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 ctgattcttg cagctctgtg 20  
  
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 <400> 54  
 aacagcaact cccactcttc 20  
  
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 <212> DNA  
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 <400> 55  
 tgggccaggg tttcttactc 20  
  
 <210> 56  
 <211> 22  
 <212> DNA  
 <213> Artificial sequence  
  
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 <400> 56  
 ggaaggatgaa ggatcgagtc aa 22

<210> 57  
<211> 22  
<212> DNA  
<213> Artificial sequence

<220>  
<223> Chemically synthesized primer

<400> 57  
gatctcgctc ctggaagatg gt

22

<210> 58  
<211> 4  
<212> PRT  
<213> homo sapiens

<220>  
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<223> Conserved strong group of NsG33

<400> 58

Asn Glu Asp Gln  
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<210> 59  
<211> 5  
<212> PRT  
<213> homo sapiens

<220>  
<221> misc\_feature  
<223> Conserved weak group of NsG33

<400> 59

Asn Glu Gln His Lys  
1 5